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ABSTRACT

A one-year instructional development project in Human Growth and Development was implemented in three stages at Western Illinois University. Intervention in the experimental groups consisted of developing and implementing instructional objectives packages, self-paced learning modules, and production of instructional materials. Changes in student attitude profiles attributable to the changing of the instructional pattern and methods are assessed in this study. The instrumentation consisted of the Personal Orientation Inventory and an instructor rating scale. Control groups were employed in a pre-post factorial design (Instructors by Stages) to test the research hypothesis that the project intervention did not adversely affect students' attitudes. The findings supported the hypothesis and interaction analyses suggested that particular stages of the project implementation affected certain attitude constructs. (Author/LBH)

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A Study of Student Attitude Change in a Three-Stage Instructional Development Project

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Abstract

A one year instructional development project in Human Growth and Development was implemented in three stages at Western Illinois University. Intervention in the experimental groups consisted of developing and implementing instructional objectives packages, self-paced learning modules, and production of instructional materials. The purpose of this study was to assess changes in student attitude profiles attributable to the changing of the instructional pattern and methods. Instrumentation consisted of the Personal Orientation Inventory and an instructor rating scale. Control groups were employed in a pre-post factorial design (Instructors by Stages) to test the research hypothesis that the project intervention did not adversely affect subjects' attitudes. The findings supported the hypothesis and interaction analyses suggested that particular stages of the project implementation affected certain attitude constructs.

A Study of Student Attitude Change in a Three-Stage Instructional Development Project

During the late fifties and through the sixties higher education became inflated with dreams of innovative programs through the use of technology, educational systems, and instructional development. However, the results have been discouraging and at times alarming.

What did we do wrong? Why has university management become reluctant to support expansion of these programs? Why is technology thought of by faculty and students, and some technologists, as an array of supplementary novelties if not as a positive menace to freedom of expression?

An analysis of current instructional development practice (Graft, 1976; Gagné and Briggs, 1974; Snelbecker, 1974) indicates two main approaches:

The product-centered approach seeks short-term replicable programs. Such programs are typically structured to produce cognitive achievement. They are often highly mediated and require the participants to display behaviors within carefully structured environments and instructional molecules.

The person-centered approach, on the other hand, places greater priority on people. Program development is influenced by human and global needs. While products are usually long-term and non-linear in

nature, the participant is expected to make evaluative selections from a repertoire of behaviors.

In a highly technical society, it is not surprising that the product-centered approach would gain support. With a cybernetic twist and engineering criteria such as cost effectiveness, efficiency, competency, and measurable results, the product-centered developers swiftly set up some of the most expensive systems for teaching subject matters. Fascinated with electronic gadgetry, the systems approach, MBO, PERT, and their offspring, instructional developers seem to have ignored software development and overlooked human values.

Challenges and criticism of the product-centered approach have been aired by humanitarians, scientists, and educators (Hassan and Chiaravalloti, 1975; Child, 1973; Travers, 1973; Maslow, 1965, 1971). Some have more serious connotations than others. A sample follows: (a) The product-centered approach assumes that the teacher is at fault. (b) The subject matter (translated cognitive domain) is more important than people and their feelings and attitudes toward each other and their habitat. (c) Programs are designed which deviate from man's high level need to socialize, interact, and self-actualize. The Skinner box-like study carrel and similar isolation environments are not likely to produce very sustained or inner directed behavior. (d) The mere carryover of technologies from industry and business in the hope that some would apply to education has proved unsuccessful and costly. Indeed, the development of the much publicized technologies

is hardly based on any foundation of pedagogical science nor can it be considered as a serious effort to develop such a science.

The present study is an attempt to resolve this dichotomy of values (the product-centered vs the person-centered) by combining an instructional development approach with its attendant technologies and objectives with a person-centered approach which emphasized flexibility. The study is primarily concerned with assessing changes in student attitude structure attributable to mediated change in instructional patterns and methods.

Over the years investigators have attempted to assess the differential effects of various teaching procedures upon student achievement in college courses. The instructional methods which have been compared in these studies can be divided into two major types: (a) variations in teaching methods (Dubin and Taveggia, 1968) and (b) variations in mode of student performance (McKeachie, 1961, 1962, 1963).

With relatively few exceptions, the overwhelming finding that has emerged from the hundreds of studies of both types is that differing college instructional procedures do not appear to produce any consistent differences in average course achievement.

One explanation for this general finding stems from the belief that college instruction is a more complicated research area than had initially been assumed; that there is an interaction between teaching methods and learner self-perception.

Unfortunately, most of the efforts to demonstrate these interaction

effects have not been very successful. While a number of significant interactions have occured in isolated studies (e.g. Paul and Ericksen, 1964; Snow et al, 1965; Tallmadge and Shearer, 1969, 1971) most have yet to be replicated. Goldberg (1972) urged that a search for interactions between widely divergent instructional methods and a broad range of personality traits be carried out among students. The present study meets most of these requirements in constrasting both personal profiles and attitudes towards instructors of students subjected to two different instructional treatments.

This study consisted of a three-stage program of instructional development involving an instructor and his classes in Human Growth and Development over a nine month period. A control group instructor and his classes cooperated over the course of the study.

Hypotheses

It was hypothesized that the personal profiles of participating students in the experimental classes would not decline in relation to control group students at any of the three implementation stages of the project. It was further hypothesized that ratings of instructors by participating students would not show relative decline at any stage.

Method

Instrumentation

Personal profiles of students in both experimental and control groups were assessed by administering the POI (Personal Orientation Inventory), (Shostrom, 1969), which yielded a profile of self

actualization. Variables in the profile are defined and normative information is given on Table 1. This instrument was employed because of its relationship to current concepts of humanistically oriented psychology (Maslow, Perls) and because the profiles had been found by the authors to generate considerable interest and self-examination by participating subjects. Reliability and normative studies for the POI have been reported by Chiaravalloti (1973).

Instructor evaluations were made by subjects who responded to the instructor evaluation scale. Scoring was done by summing the item responses ranging from '1', indicating the lowest rating, to '4', indicating the highest. Reflection was performed by computer for items with reversed scales. The highest possible score on 16 items was 64. Instructor evaluations were administered by a member of the project in the absence of the instructor being evaluated. This procedure is customary at Western Illinois University, but deviated from normal practice in administering a pretest.

Pretest administrations of the POI were prefaced by instructions and a brief non-specific description of the inventory. Students were requested to submit to the forced-choice format and were asked not to omit any item, no matter how hard the choice appeared to be. Students were notified that their profiles would be returned to them and interpreted for them in a group session and that their instructors would not have access to their individual profiles. Student identification by sequence number was obtained for the purpose of pre to post-test

Table 1

Personal Orientation Inventory

Subscales

ITEMS	VARIABLE	SYMBOL	DEFINITION
23	(1)	TC	TIME COMPETENCE - measures whether or not use of time is efficient
127	(2)	I	INNER DIRECTEDNESS - measures whether reactivity orientation is basically toward others or self
26	(3)	SAV	SELF-ACTUALIZING VALUE - measures affirmation of a primary value or self-actualizing people
32	(4)	EX	EXISTENTIALITY - measures ability to react existentially to situations without rigid adherence to principles
23	(5)	FR	FEELING REACTIVITY - measures sensitivity of responsiveness to one's own needs and feelings
17	(6)	S	SPONTANEITY - measures freedom to react spontaneously or to be one's self
16	(7)	SR	SELF REGARD - measures affirmation of self because of worth or strength
26	(8)	SA	SELF ACCEPTANCE - measures affirmation or acceptance of self in spite of weaknesses or deficiences
16	(9)	NC	NATURE OF MAN - measures degree of the constructive view of the nature of man, masculinity, femininity
9	(10)	SY	SYNERGY - measures ability to be synergistic, to transcend dichotomies
25	(11)	A	ACCEPTANCE OF AGGRESSION - measures ability to accept one's natural aggressiveness as opposed to defensiveness, denial, and repression of aggression
28	(12)	C	CAPACITY FOR INTIMATE CONTACT - measures ability to develop contactful intimate relationships with other human beings, unencumbered by expectations and obligations

matching.

Feedback sessions were scheduled a week to 10 days later to present the scored self-actualization profiles to each class of students--both participating and control groups. Profiles were converted to standard scores for ease of interpretation and returned on IBM cards. Explanations were illustrated with an overhead transparency of the profile sheet with the class means marked out as a sample profile. Students were encouraged to ask questions--either general or specific, and each session lasted about 50 minutes. Interest in the personal profiles was judged to be high, although a few students expressed some anxiety over their scores or what they perceived as biases in the POI instrument. Possible biases were discussed openly and the evaluator encouraged respondents to reject or question any values they were not comfortable with. Arrangements were made to see any student privately who wished to discuss a profile in more depth.

The pretesting and feedback procedures set the scene for a consideration of personal values and characteristics, their possible change, and their relation to roles in education. This approach was welcomed by both the experimental group and the control group instructors, and both felt that the testing and feedback sessions were valuable educational experiences within their instructional philosophies.

Posttesting was scheduled during the last week of each term and arrangements were made to allow any student to recover his posttest profile card after final grading had been done for the course.

Two hundred and sixteen sets of pre and post-test instructor evaluations and 233 sets of POI profiles were successfully matched from 9 classes over the three stages. Approximately 15% of the observations had to be omitted because they could not be matched or because the participating student dropped the course.

Statistical Design

Data were analyzed in a factorial design employing multivariate statistics for POI profiles and univariate statistics for instructor evaluation scores. Factors were Instructors (two levels) by Stages (three levels). The factorial design permitted exploration of interactive effects between Instructors and Stages. Analysis of covariance was used with pretest as the covariate. For the POI analyses the I-scale which includes 127 items of the 150 item inventory was used as the covariate.

Since the research hypothesis specified a null condition, the entire analysis was performed twice in the event that one analysis should prove insensitive to a possible difference. The second set of analyses employed gainscores as criteria. All analyses were performed using MANOVA (Clyde, 1969) and non-directional tests at alpha $<.05$ were used for decisions. The multivariate decision procedure employed was to first examine the multivariate test for significance, and then to interpret the univariate F-ratios only if the multivariate test proved to be significant. Higher order roots of these multivariate tests were not significant and were omitted from the tables. The same held true of tests of homogeneity of regression.

Results

Self-Actualization Profiles

A multivariate analysis of covariance was performed on the 12-variable POI profiles by Instructors and Stages. This analysis is summarized on Table 2. The interaction effect was significant and concurrent univariate tests identified two variables showing differences: the EX-scale (existentiality) and the FR-scale (feeling reactivity). Adjusted posttest means for all POI variables by factors and interactions are displayed on Table 3.

The variables showing significant interactions were graphically analyzed by plotting instructor trend lines across stages and are displayed as Figures 1 and 2. Figure 1 indicated a relatively large increase in existentiality for the experimental group during Stage 2, accompanied by a corresponding decrease in the control group. The two groups converged closely during Stage 3. Figure 2 shows a similar increase in feeling reactivity for the experimental group at Stage 2 followed by a decline that is paralleled by the control group.

The parallel gain-score analysis revealed no significant findings and is not reported here.

Instructor Evaluations

An analysis of covariance was performed on instructor evaluation posttest scores with pretest scores as covariate. This analysis of Instructors by Stages is summarized on Table 4. The Stages effect showed a significant difference: means for Stages 2 and 3 were higher

Table 2

Summary of Analysis of Covariance of POI
Adjusted Posttest Profiles with
I-scale Pretest as Covariate

Instructors X Stages

Multivariate Test

Test of	F Ratio	df	Prob
Instr X Stages	1.583	24,438	0.040
Stages	1.157	24,438	0.277
Instructors	1.447	12,219	0.146

Univariate Tests

	Test of					
	Instr X Stages		Stages		Instructors	
	degrees of freedom					
Variable	2,230		2,230		1,230	
	F	Prob	F	Prob	F	Prob
TC Post	0.664	0.516	3.241	0.041	1.222	0.270
I Post	1.186	0.307	0.065	0.938	1.328	0.250
SAV Post	0.624	0.537	1.272	0.282	0.168	0.682
EX Post	3.907	0.021	0.136	0.873	0.756	0.386
FR Post	3.275	0.040	0.881	0.416	1.916	0.168
S Post	0.233	0.792	0.526	0.592	1.876	0.172
SR Post	2.133	0.121	0.135	0.874	2.496	0.115
SA Post	0.347	0.707	0.502	0.606	0.494	0.483
NC Post	1.554	0.214	1.135	0.323	4.548	0.034
SY Post	0.175	0.840	0.196	0.822	2.426	0.121
A Post	2.473	0.087	0.167	0.846	0.599	0.440
C Post	1.629	0.198	0.786	0.457	2.003	0.158

Table 3

Adjusted Posttest Means for Instructors X Stages

Analysis of Self Actualization Profiles

LEVEL OF I	LEVEL OF S	VARIABLE: POI TC	POI I	POI SAV	POI EX	POI FR	POI S	POI SR	POI SA	POI NC	POI SY	POI A	POI C
Instructors X Stages Interaction													
1	1	17.679	90.160	21.288	* 22.902	* 17.614	13.679	13.046	16.682	11.720	6.806.	17.506	19.182
1	2	16.537	89.010	20.999	21.685	17.322	13.174	13.012	16.376	12.150	6.845	16.545	19.131
1	3	17.783	89.390	20.561	22.071	16.776	13.411	12.763	17.025	12.539	6.794	16.938	19.140
2	1	18.088	89.856	21.289	22.028	17.130	13.834	12.441	16.153	12.650	6.931	16.891	19.202
2	2	17.298	92.573	20.654	23.912	18.316	13.782	12.172	16.630	12.898	7.096	17.763	20.610
2	3	17.450	90.348	21.085	22.310	17.926	13.707	13.160	16.628	12.443	7.100	17.367	19.449
Instructors													
1	-	17.333	89.498	20.949	22.196	17.238	13.411	12.942	16.683	12.139	6.816	16.977	19.150
2	-	17.716	90.693	21.070	22.593	17.647	13.787	12.559	16.401	12.661	7.018	17.243	19.633
Stages													
-	1	17.879	90.011	21.288	22.475	17.377	13.755	12.750	16.423	12.174	6.867	17.205	19.191
-	2	16.846	90.135	20.890	22.388	17.636	13.366	12.747	16.456	12.386	6.924	16.929	19.598
-	3	17.671	89.714	20.738	22.152	17.165	13.511	12.897	16.891	12.506	6.898	17.083	19.244

Figure 1

Interaction of Instructors X Stages

POI-Existentiality Adjusted Means

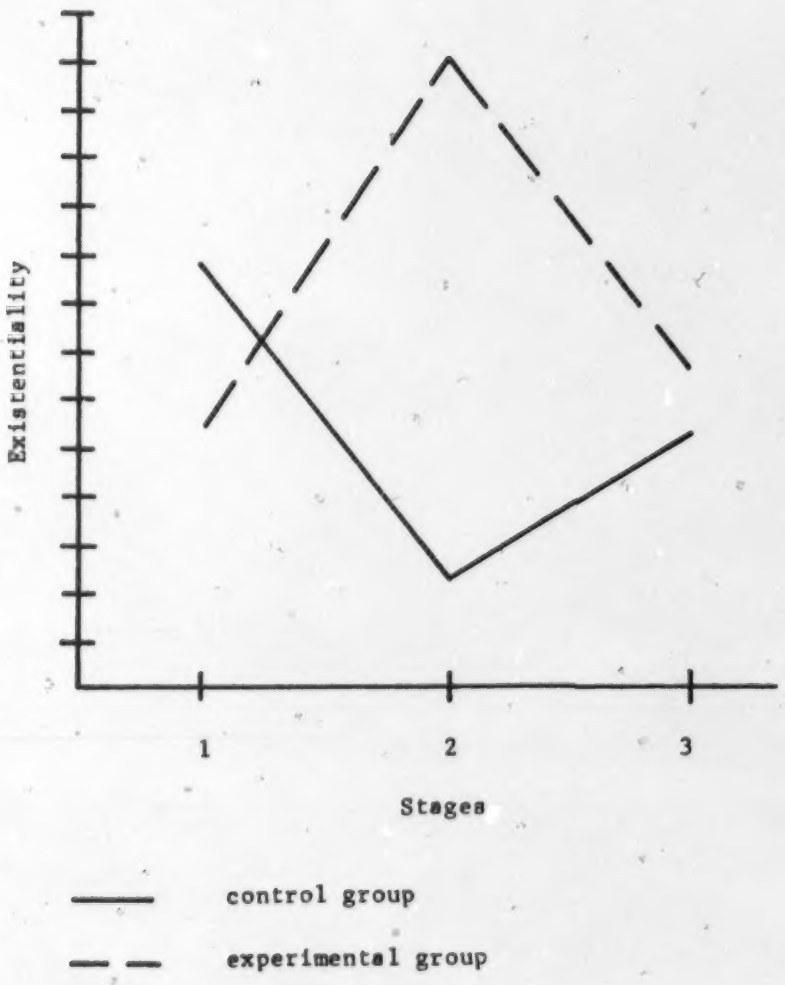


Figure 2

Interaction of Instructors X Stages

POI-Feeling Reactivity

Adjusted Means

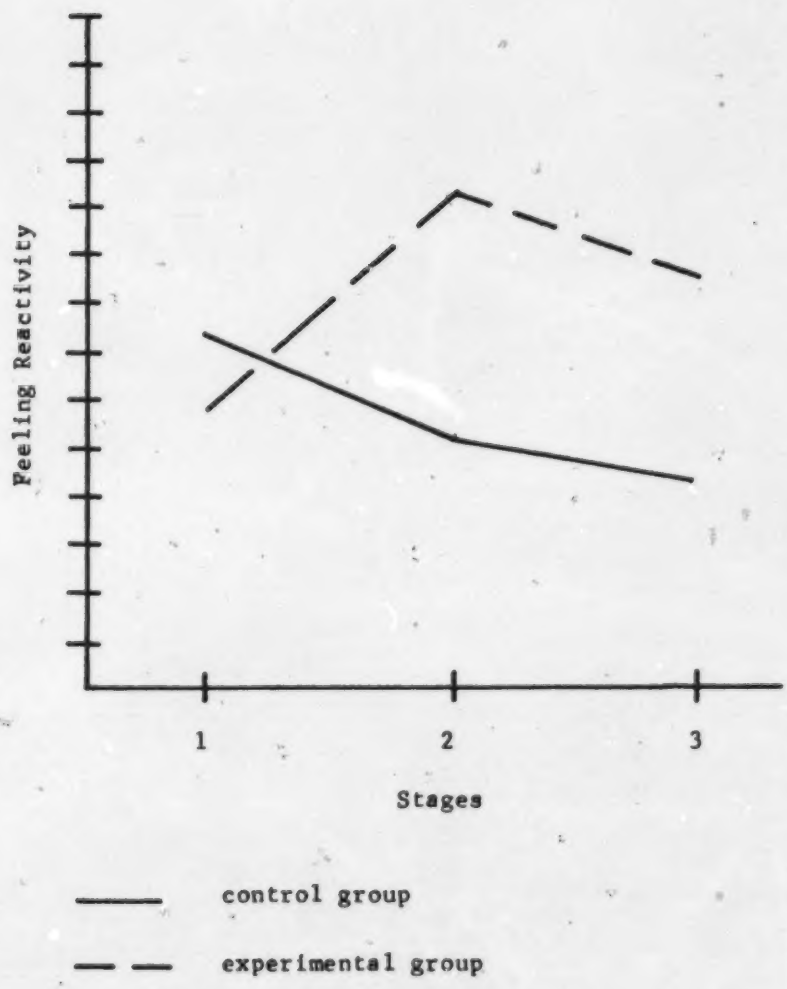


Table 4

Summary of Analysis of Covariance of Instructor Rating Posttest Scores with Pretest as Covariate

Instructors X Stages

Source	df	MS	F	Prob
Error	209	22.582		
Regression	1	2216.732	98.165	0.001
Instructors	1	1.910	0.085	0.771
Stages	2	275.178	11.389	0.001
Ins X Stages	2	50.791	2.249	0.108

than for Stage 1 for both instructors. Adjusted posttest means for this analysis are displayed on Table 5 along with the parallel gain-score means.

The parallel gain-score analysis confirmed this stage difference and revealed an interaction difference. This analysis is displayed on Table 6. A graphic analysis of the interaction is given on Figure 3. Evaluation ratings were similar and parallel for both instructors through Stages 1 and 2 but at Stage 3 the experimental group gave higher instructor ratings while the control group ratings dropped back to Stage 1 levels. A re-examination of the adjusted posttest means showed a similar trend.

Discussion

Self-Actualization profiles did not differ significantly between instructors overall but there were differences at particular stages in favor of the experimental groups. This was particularly true of the existentiality and feeling reactivity scales. There were differences in instructor evaluation between stages but not between instructors. A significant interaction in the gain score analysis showed, however, that during the stage of implementation the ratings diverged with the control group ratings dropping, while the experimental group ratings increased.

Conclusions

The investigators examined personal profiles of students and their evaluations of instructors to identify possible areas of change

Table 5

Adjusted Posttest Means and Gainscore Means

for Instructors X Stages Analyses

of Instructor Evaluations

Level of		Variable	
Instructors	Stages	Adj. Means	Gainscores
Instructors X Stages			
1	1	43.674	-2.417
1	2	47.392	0.542
1	3	45.282	-2.455
2	1	43.803	-2.846
2	2	46.877	-0.100
2	3	48.447	1.294
Instructors			
1	-	45.454	-1.414
2	-	45.651	-1.197
Stages			
-	1	43.732	-2.609
-	2	47.240	0.353
-	3	46.164	-1.410

Table 6

Summary of Analysis of Variance

of Instructor Rating

Gainscores

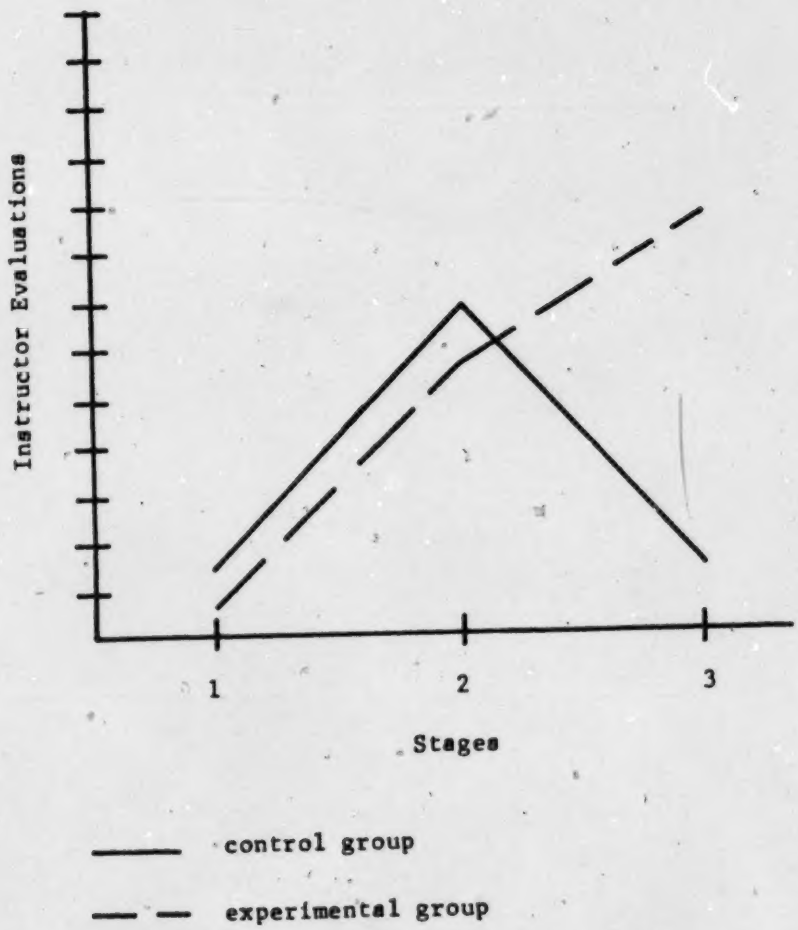
Instructors X Stages

Source	df	MS	F	Prob
Error	210	27.195		
Instructors	1	2.318	0.085	0.771
Stages	2	174.497	6.417	0.002
Instr X Stages	2	83.058	3.054	0.049

Figure 3

Interaction of Instructors X Stages

Instructor Evaluation Gainscores



in student attitudes and values. Experimental subjects were involved in a three stage instructional development project. The investigators felt that these variables were broadly representative of "intangible" personal factors often thought to be adversely affected by the introduction of "product-centered" instructional development techniques into the classroom environment. These variables were judged to be especially relevant to the subject matter being taught: Human Growth and Development.

After each stage the experimental subjects exhibited personal profiles equal to, and at times superior to those of the control subjects. Instructor evaluations were comparable overall for both groups, with the experimental instructors being rated more highly at the final stage of the project. The investigators concluded that their research hypotheses were tenable as stated, and that no decline in self-actualization profiles or instructor evaluations takes place in a sensitively managed instructional development project.

It is recommended that similar projects be evaluated with attitudinal scales appropriate to the discipline under consideration whenever possible. The investigators believe that such evaluations can potentially enhance instructional development acceptance among both students and faculty.

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